



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,431	11/13/2003	Ryuji Nishikawa	YKI-0140	1770

23413 7590 04/06/2007  
CANTOR COLBURN, LLP  
55 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

EXAMINER
----------

LIN, JAMES

ART UNIT	PAPER NUMBER
----------	--------------

1762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/714,431

Applicant(s)

NISHIKAWA, RYUJI

Examiner

Jimmy Lin

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 3/24/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent 6,830,494) in view of the Applicant's admitted prior art (hereafter AAPA) and Kim et al. (U.S. Patent 6,146,715). Additionally, Tanaka (U.S. Publication 2002/0052100) is cited herein for evidence of inherency.

Yamazaki discloses a method of forming an organic electroluminescent (EL) display device (abstract). The EL device comprises a lower electrode 1602, an upper electrode 1610, and an EL layer 1608 formed therebetween. Separation layers 1603 are formed on the substrate to separate the EL layers. A protection film 1611 is then formed over the upper electrode and the separation layer (Figs. 16A-16C).

Yamazaki does not explicitly teach that the EL display device has a terminal for external connection for driving the EL element. However, the EL device must necessarily have terminal electrodes in order for the device to function according to its design.

Yamazaki does not explicitly teach a laser absorbing material. However, Yamazaki does teach that the separation layer can be made of a polyimide material (col. 10, lines 55-58) and Tanaka teaches that polyimides inherently have laser absorbing properties [0152]. For the purposes of this prosecution, the separation layer of Yamazaki will be interpreted to be the claimed laser absorbing material.

Yamazaki teaches that the laser absorbing material is deposited via spin coating and, thus, coats the entire substrate with the material, including the terminal electrodes.

Yamazaki does not teach that the protective film is formed over the terminal electrodes. However, Yamazaki does teach that the protective film (i.e., the passivation film) functions to protect the organic EL material from moisture and heat (col. 13, lines 27-38). To have formed

Art Unit: 1762

the protective film over the entire substrate, including the terminal electrodes, would have ensured better protection. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the protective film of Yamazaki over the entire substrate. One would have been motivated to do so in order to further protect the organic EL elements from moisture and heat. In view of these teachings, a laser absorbing material and a protective material are formed over the terminal electrodes.

Yamazaki does not explicitly teach a method for exposing the terminal electrode. However, AAPA teaches that there is a need to expose the terminal electrode in order to make an outside connection to some kind of external power supply in order to drive the element and that the terminal of an EL device can be exposed via a wet etching process through photolithography (pg. 2, lines 8-21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have removed the layers over the terminal electrode of Yamazaki with a reasonable expectation of success. One would have been motivated to do so in order to have exposed the terminal electrode to make an outside connection.

AAPA teaches that wet etching is a suitable method for exposing the terminal electrode, but does not explicitly teach that the removal method uses a laser ablation process. However, Kim teaches that organic EL materials are extremely vulnerable to solvents (col. 1, lines 61-63) and teaches the desire to avoid the use of solvents in the method of making organic EL devices. The wet etching technique as suggested by AAPA would necessarily use some sort of solvent to remove the desired layers. The use of such solvents may deteriorate the quality of the EL layers. Instead, Kim teaches that the use of a laser to remove the desired layers can avoid the use of solvents altogether. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a laser ablation method to expose the terminal electrodes of Yamazaki. One would have been motivated to do so in order to have avoided the use of solvents required in the wet etching method of AAPA and to have prevented the deterioration of the organic EL layers.

Claim 2: Yamazaki teaches that the laser removal layer is made of polyimide (i.e., an organic insulating layer) as discussed above.

Claims 3,6: Yamazaki teaches that the organic insulating layer contains a photosensitive material (col. 10, lines 55-58) and that the film is a planarizing layer (Fig. 16A).

Art Unit: 1762

Claims 4,7: Yamazaki teaches that the protection film can be formed of silicon nitride (col. 24, lines 63-65). According to the Applicant's specification, silicon nitride is an exemplary material for use as the protection film that has sufficient transmittance for laser light (col. 10, lines 9-21). Therefore, the silicon nitride film of Yamazaki must necessarily have laser transmitting properties. Additionally, the protective film is removed along with the laser removal layer when the laser light is irradiated, as discussed above.


Claim 5: Yamazaki teaches that a plurality of EL elements 1608 are formed on the substrate and that the organic insulating layer 1603 separates the organic EL elements (Fig. 16C). The organic insulating layer is simultaneously formed over the formation region of the terminal electrode as the laser removal layer as discussed above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL  
JL

  
**KEITH HENDRICKS**  
**PRIMARY EXAMINER**